Tectum® Direct-Attach Ceiling & Wall Panels

Tectum Direct-Attach, Tectum Create!™, Tectum High NRC Assembly and Installation Instructions

TABLE OF CONTENTS

1. GENERAL 2
- **1.1** Product Description
- **1.2** Safety
- **1.3** Warranty
- **1.4** Surface Finish
- **1.5** Storage & Handling
- **1.6** Site Conditions
- **1.7** HVAC Design & Operation, Temperature & Humidity Control
- **1.8** Colors

2. DESIGN CONSIDERATIONS 3
- **2.1** Directionality
- **2.2** Edges
- **2.3** Pool Installations
- **2.4** Exterior Installations
- **2.5** Direct Attachment
- **2.6** Surface Finish

3. TECTUM ACCESSORIES 4
- **3.1** Screws
- **3.2** Truss Fastening Kit

4. INSTALLATION OPTIONS 5
- **4.1** Mounting Method A
- **4.2** Mounting Method D-20
- **4.3** Mounting Method C-20
- **4.4** Mounting Method C-40
- **4.5** Panel Direction & Fastener Layout
- **4.6** Screw Placement for ALL Mounting Methods
- **4.7** Staggered End Joints (Ashlar Pattern)
- **4.8** Field Cutting
- **4.9** High-Impact Areas
- **4.10** Attachment to I-Beam
- **4.11** Attachment to Truss

5. DIRECT-ATTACH – CEILING MOUNTING METHODS 12
- **5.1** Direct-Attach to Armstrong Ceilings Drywall Grid System

6. DISCONTINUOUS/FLOATING INSTALLATION 13
- **6.1** Clouds with Axiom® Trim

7. PANELS 13
- **7.1** Edge Detail/Interface
- **7.2** Cutting of Panels
- **7.3** Directionality
- **7.4** Acoustic Infill for Direct-Attach Panels
- **7.5** Field Painting
- **7.6** Tectum Create! Field Touch-Up

8. SPECIAL INSTALLATION CONSIDERATIONS 15
- **8.1** Sloped
- **8.2** Pools/Natatoriums
- **8.3** Exterior Installations

9. SEISMIC INSTALLATIONS 15

10. TECTUM CREATE!™ 15
- **10.1** Design Layouts
- **10.2** Direct-Applied – Adhesive Installation

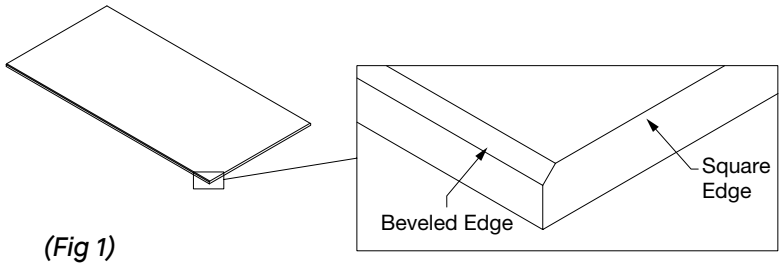
Armstrong®
World Industries

This installation guide is applicable to the following product lines: Tectum Direct-Attach, Tectum Create!, and Tectum High NRC. All references from here on out will be identified as ("Tectum panels").

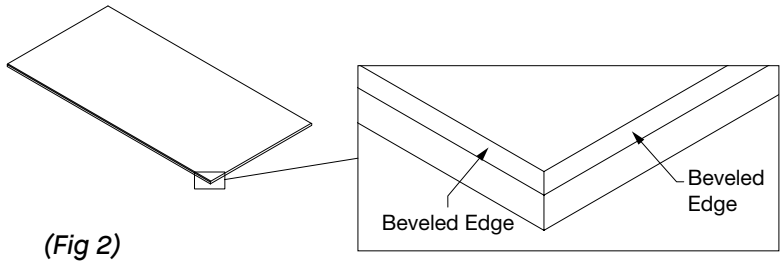
1. GENERAL

1.1 Product Description

Tectum® Direct-Attach ceiling and wall panels are highly impact-resistant panels made of Aspen wood fibers held together with a cementitious binder. Standard Tectum Direct-Attach panels for walls and ceilings are available in 1", 1.5" and 2" thick and 2' × 4', 2' × 8' and 4' × 8' nominal panel sizes. Some panels are available with beveled edges along the two longer sides *(Fig 1)*, while others feature beveled edges on all four sides *(Fig 2)*. For more details and corresponding item numbers, please refer to the data page.



(Fig 1)



(Fig 2)

NOTE: It is recommended that Tectum panels are installed beveled edge to beveled edge. Square edges should only be used around the perimeter of installations.

Custom panels are available in additional sizes upon request (Contact TechLine).

Standard panels are available in two colors: White and Natural. Please note, Natural and White panels will show normal color variation due to the wood fibers.

Standard Tectum Create!™ panels for walls and ceilings are 1" thick and available in actual sizes of 23-3/4" × 48" and 47-3/4" × 96". Standard panels are available in four designs: Textured Hex, Exposed Brick, Rustic Plank, and Steady Wave. Custom images are available upon request. Care should be taken on orientation of panels. Consult Architectural Specialties when combinations of nominal 2' × 4' and 4' × 8' are used together. All panels are beveled on four sides *(Fig 2)*. Images are applied to the bevel.

Tectum panels are installed using Tectum screws on furring or other appropriate fasteners when attaching directly to the structure. See Sections 4 & 5 for more details on installation. Depending on mounting method and panel thickness, Tectum panels provide an NRC (sound absorption) ranging from 0.40 to 1.00. Panels can be field cut and field painted up to six times without impacting acoustic or fire performance (see Section 7.5).

1.2 Safety

This product is made of wood fibers and cementitious binder. Sawing, sanding, or machining these products can produce wood dust and crystalline silica. Airborne dust can cause respiratory, eye, and skin irritation. Respirable wood dust and crystalline silica are classified as carcinogens. Personal protective equipment includes safety glasses or goggles, and impervious gloves. Respiratory protection may be required and depends on how the product is being cut and handled. Job site environmental conditions must be evaluated in determining what type of respiratory protection is required. In all cases, cutting is to be performed in a well-ventilated area and power tools must be equipped with a dust collection system. Refer to the Safety Data Sheet on *www.armstrongceilings.com/tectum* for additional information.

1.3 Warranty

Failure to follow the Armstrong Ceilings recommended installation instructions in effect at the time of installation may void the product and/or ceiling system warranty.

1.4 Surface Finish

Tectum® panels are made of wood fibers within a cementitious binder. White panels are finished with a latex-based paint. Due to the unique porous composition of Tectum panels, they can be field painted up to six times without negatively impacting acoustic or fire performance.

1.5 Storage & Handling

Panels should be stored in a dry interior location and shall remain in cartons prior to installation to avoid damage. The cartons should be stored in a flat, horizontal position.

Proper care must be taken when handling to avoid damage and soiling. Do not store in unconditioned spaces with humidity greater than 85% or lower than 25% RH, and temperatures lower than 32°F or greater than 120°F. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window where there is direct sunlight.

Tectum Create! panels should be handled as finished art work and should be inspected prior to installation. Do not install damaged panels. Exact copies of a section of an image on one panel can be reprinted if the panel is damaged beyond use during installation. Images printed on Tectum do not have the same durability as paint so extra caution should be exercised to not scuff edges or rub the surface that could damage the image. It is not uncommon for the image to have some strands that have loosened during shipping or handling that expose the binder used in the manufacturing process. These can be touched up individually or left to remain if acceptable when viewed at a distance of greater than 10'-15'.

1.6 Site Conditions

Tectum panels are required to reach room temperature and have stabilized moisture content for a minimum of 72 hours before installation. They should not, however, be installed in spaces where the temperature is lower than 32°F or greater than 120°F, or humidity conditions are greater than 85% or lower than 25% RH. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window where there is direct sunlight. All wet work (plastering, concrete, etc.) must be complete and dry.

1.7 HVAC Design & Operation, Temperature & Humidity Control

Real wood and wood composite products are natural building materials and they will react to changes in humidity. Cementitious wood fiber panels may also have a tendency to warp, twist, or bow due to the natural stresses in the components and these humidity changes. Be aware of these natural tendencies when evaluation the products.

Spaces with installed products should be maintained with humidity in a range between 25% and 85% RH and temperatures in a range between 32°F and 120°F. Wood tends to contract with lower humidity and expand with higher humidity. It is also necessary for the area to be enclosed and for the HVAC systems to be functioning and in continuous operations for the life of the product. All wet work (plastering, concrete, ect.) must be completed and dry.

1.8 Colors

Standard Tectum panels are available in Natural and White finishes. Due to the natural variation of Tectum wood fibers, Natural and White panels will have normal color variation from panel-to-panel and within panels. Due to manufacturing processes, the face of Natural (TNA) panels may appear whiter than the back and edges. Panels can be field painted up to six times without losing their acoustical or fire performance. See Section 7.5 for field painting guidelines. Factoryfinished custom colors are also available (Contact TechLine). Standard Tectum Create! panels are available in four designs: Textured Hex, Exposed Brick, Rustic Plank, and Steady Wave. Custom designs are available upon request.

2. DESIGN CONSIDERATIONS

2.1 Directionality

Tectum Direct-Attach panels are available with different edge profiles. Some panels feature beveled edges on the two long sides with square ends. These panels should be installed beveled edge to beveled edge. In Installation layouts where these are not possible, ashlar patterns are required. For greater design flexibility, other panels are available with beveled edges on all four sides. Refer to the data page for item numbers corresponding to each edge option mentioned or contact Techline for assistance.

Tectum Create!™ panels are directional based on the printed design. The label on the back of the panel will designate the direction of the panel. All panels must be installed in the same direction in order to achieve the desired design. Installers should line the panels edges up so the design flows seamlessly from panel to panel. See Section 10 for the standard design layouts. All panels are beveled on all four sides.

2.2 Edges

Exposed edges are factory painted. See Section 7.5 for guidance on field painting.

2.3 Pool Installations

1-1/2" and 2" thick Tectum® Direct-Attach ceiling and wall panels can be used in pool areas or other high-humidity areas where standing water is present. Review the *Tectum Direct-Attach Ceiling and Wall Panels for Indoor Swimming Pool Applications* installation instructions for more information.

2.4 Exterior Installations

Tectum Direct-Attach ceiling and wall panels are not intended for exterior use.

2.5 Direct Attachment

Tectum Direct-Attach panels are mechanically fastened to furring (metal or wood) or direct to structure using appropriate fasteners. See Installation Sections 4 & 5 for different mounting methods. Direct-Attach panels are have weights of 1" - 1.65 lbs/SF, 1-1/2" - 2.23 lbs/SF, and 2" - 3.3 lbs/SF. Correct fasteners should consider total system weight. For acoustical solutions, reference C-20 and C-40 mounting. Do not countersink screws or fasteners into panel face. The type and position of framing and furring will be specified by the contractor.

2.6 Surface Finish

It is also not uncommon for dark colors to not penetrate on all strands below the surface of the Tectum. This is not a defect, but rather typical of imaging on excelsior wood fibers. Drywall screws should be installed flush with the face of the Tectum and touched up with complementary color permanent markers. Ceiling installations of Tectum should only be installed with drywall screws with fastener patterns shown for direct attached installations. Adhesive or direct attached installation methods are acceptable for walls.

3. TECTUM ACCESSORIES

3.1 Screws

Armstrong® Ceiling and Wall Systems offers a total of 9 screw options. Three types of screws for many common installation methods in three lengths for each of our panel thicknesses. Refer to the Fastener Reference Chart to obtain screw item number specific to the panel thickness being installed. For specific installation instructions, including which screw for furring to structure connection and spacing, please see Section 4.

Sharp point screws are available in coordinating factory-finished White (suffix TWH). For 20- and 25-light-gauge steel framing, wood furring, or Armstrong® FrameAll® drywall grid, use the self-drilling drywall screw length noted in the fastener reference chart.

Drill point screws are available in factory-finished White (suffix TWH). For 20-gauge structural and heavier steel decking or framing, use the self-drilling drywall screw length noted in the fastener reference chart.

CMU Screws are available in factory-finished White (suffix TWH). For hollow block CMU (Cement Masonry Unit or breeze/cinder block) structures, use the masonry screw length noted in the fastener reference chart. See specific installation guidance in Section 4.1.

	Screw Item Number	Screw Length	Panel Thickness
Sharp Point	8187L16	1-5/8"	1"
	8187L22	2-1/4"	1-1/2"
	8187L30	3"	2"
Drill Point	8188L16	1-5/8"	1"
	8188L23	2-3/8"	1-1/2"
	8188L30	3"	2"
CMU	8189L22	2-1/4"	1"
	8189L27	2-3/4"	1-1/2"
	8189L32	3-1/4"	2"

To attach Tectum panels to structures or surfaces not listed in this section, please contact a fastener manufacturer, such as Hilti®, Fastenal®, or TapCon® to obtain guidance and engineering data support. Use the following screw colors for the standard Tectum® Create!™ designs:

Textured Hex: Factory-finished White (suffix TWH)

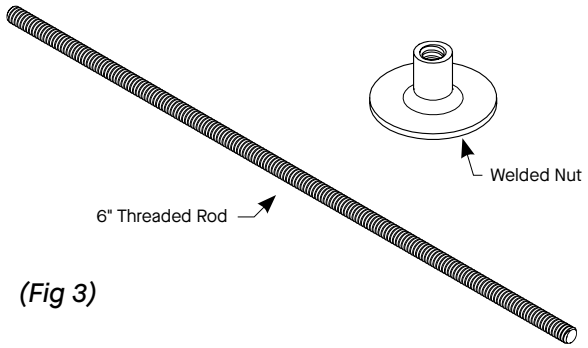
Exposed Brick: Factory-finished White (suffix TWH) – install screw in the white mortar between bricks

Rustic Plank: Black screw head (by others)

Steady Wave: Factory-finished White (suffix TWH)

3.2 Truss Fastening Kit

The Truss Fastening Kit contains a threaded rod and weld nuts *(Fig 3)*. The threaded rod is designed to pierce panels and be capped on both ends by the weld nut. The weld nut's head acts as a washer once properly installed. Each kit contains 20 threaded rods and 40 weld nuts. 24" × 48" Tectum panels require 4 fasteners.



(Fig 3)

4. INSTALLATION OPTIONS

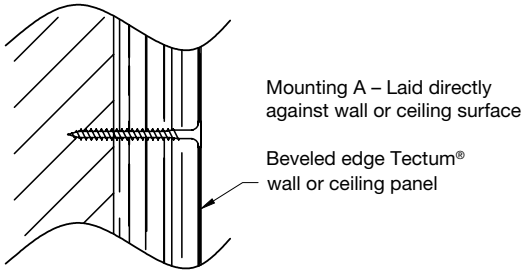
There are three different installation options for use with Tectum panels. These options are:

- Screw attached to furring or DGS that is secured to structure (ceiling or walls)
- Installed on an I-Beam – screw attached to furring that is secured to the I-Beam (see Section 4.10)
- Installed on a steel truss with the Truss Fastening Kit (see Section 4.11)

For Tectum Direct-Attach panels, one of the most common application methods for Tectum interior panels is screw attachment to furring. The furring can be either wood or metal. Direct-Attach panels have a weight of 1" - 1.65 lbs/SF, 1-1/2" - 2.23 lbs/SF and 2" - 3.3 lbs/SF. Consider total system weight when determining fasteners. The furring enables improved sound absorption and allows the installer to fasten in areas where there could otherwise be obstructions. The use of screw attachment for interior panels is widely accepted. The proper installation of the screws results in an installation where the heads are difficult to find even when viewed from a short distance. The Phillips flat head screws are painted to match either the painted White panels or the Natural panels. The screws are installed so that the screw head is flush with the surface of the Tectum panel. Do not countersink the screw heads. The texture of Tectum panels helps hide the screw head. This installation section will review the different mounting methods and fastener recommendations.

The NRC requirements will dictate what mounting method should be used. Verify specifications or drawings to determine project requirements. There are four direct mounting methods and each of them will have specific installation requirements so the Tectum system can meet project NRC specifications.

4.1 Mounting Method A *(Fig 4)*



(Fig 4)

Mounting Method A requires installing panels directly to a wall structure with no furring or space behind the Tectum panels. Please consult this section for type of screw (CMU/Drill Point/Sharp Points) and Section 4.6 for spacing requirements (for both Standard Interior and High-Impact/ Abuse applications). Because ceiling and wall structure materials vary greatly, Armstrong World Industries does not offer fasteners for all project applications, but does provide fasteners for the most common structures. Depending on what the substrate is, there are different recommendations for which fastener to use.

For one of the most common wall structures, CMU (hollow Cement Masonry Unit, or breeze/cinder block), use Tectum CMU Screw. While the CMU screw will work in a majority of concrete block applications, it is important to note that it will not work with all concrete. It is difficult or impossible to use this screw with some poured or precast concrete. Work with a fastener manufacturer to determine best fastener for your application and to acquire engineering reports regarding performance. Contact Armstrong Ceilings TechLine or TapCon® if specific guidance is needed related to drill bits, anchors, or general CMU screw installation.

NOTE: Refer to the Fastener Reference Chart found in Section 3, to obtain screw item number specific to the panel thickness being installed.

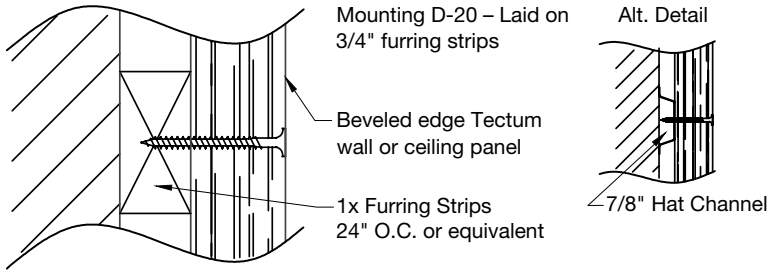
For structures other than hollow CMU, contact a fastener manufacturer, such as Hilti®, Fastenal®, or Tapcon® to get guidance and engineering support data on the fastener type that will meet pull-out requirements for your building code.

IMPORTANT NOTES: Power Actuated Fasteners: Do not use power actuated fasteners to directly attach Tectum panels to masonry surfaces. If power actuated fasteners are necessary they should be used on the furring/hat channel and panels screw-attached to the furring as described in steel framing and wood furring Section 4.2.

Exterior Masonry Walls: In the event that you encounter uninsulated exterior walls, or if you are uncertain of the insulation conditions of the wall, use furring strips to ensure an air gap between panels and the structure to minimize unwanted condensation-related issues.

For fastener spacing requirements for standard interior and high-impact spaces, see Section 4.6.

4.2 Mounting Method D-20 *(Fig 5)*



(Fig 5)

The D-20 Direct-Attach mounting method includes beveled-edge wall panels laid on 3/4" furring strips, or Drywall Grid (Item 8906 main beam and XL8945 cross tees) to maintain air gap between structure and back of the Tectum® panels. The furring must be attached to structure in a method that supports the full weight of the panels *per the requirements specified in Section 4.5*. Contact a fastener manufacturer, such as Hilti®, Fastenal® or TapCon® to ensure the correct fastener for the structure type, since structure fastener requirements can vary. Due to joist/stud spacing in most jobs, to meet fastener layout requirements furring strips are recommended to ensure a secure fastening location for the panels. If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications.

Please consult the following sections for attaching the Tectum panels to the type of furring selected (Drill Point/Sharp Points) and Section 4.6 for spacing requirements (for standard interior or high-impact/abuse spaces):

Attach Tectum panels directly to 3/4" wood or metal hat channel furring (see Section 4.6 for screw spacing/guidance):

Wood Furring
In a D-20 mounting, to attach to wood furring, use Tectum sharp point screws with coordinating painted face.

Light Gauge (20-25 gauge) Metal Furring/Framing
In a D-20 mounting, attach to thin gauge metal furring with Tectum sharp point screws with coordinating painted face.

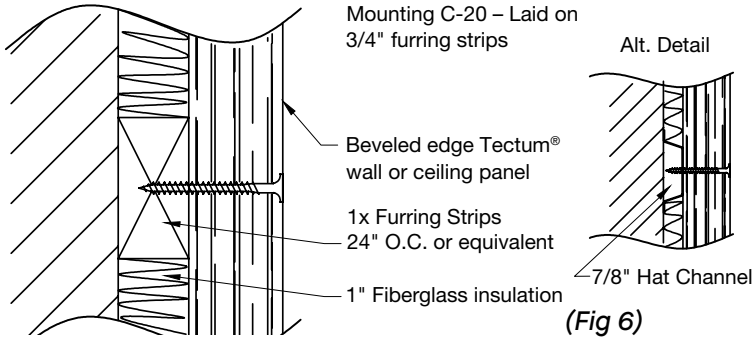
Drywall Grid Furring
In a D-20 mounting, attach to thin-gauge metal furring with Tectum sharp point screws with coordinating painted face.

Heavy-gauge Metal Furring
In a D-20 mounting, attach to heavy-gauge metal furring with Tectum drill point screws with coordinating painted face.

NOTE: Refer to the Fastener Reference Chart found in Section 3, to obtain screw item number specific to the panel thickness being installed.

4.3 Mounting C-20 *(Fig 6)*

The C-20 Direct-Attach mounting method includes beveled edge wall panels laid on 3/4" furring strips with 1", 3-lb. density fiberglass batt insulation between the furring, which increases the acoustic absorption of the installed space (NRC). The furring must be attached to structure in a method that supports the full weight of the panels per the requirements specified in Section 4.5. Contact a fastener manufacturer, such as Hilti®, Fastenal®, or TapCon® to ensure the correct fastener for the structure type, since structure fastener requirements can vary.



(Fig 6)

Due to joist/stud spacing in most jobs, to meet fastener layout requirements furring strips are recommended to ensure a secure fastening location for the panels.

If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications.

Please consult the following sections for attaching the Tectum® panels to the type of furring selected (Drill Point/Sharp Point) and Sections 4.5 and 4.6 for spacing requirements (for standard interior or high-impact/abuse spaces):

Attach Tectum panels directly to 3/4" wood or metal furring (see Section 4.6 for screw spacing/guidance):

Wood Furring
In a C-40 mounting, to attach to wood furring, use Tectum sharp point screws with coordinating painted face.

Light Gauge (20-25 gauge) Metal Furring/Framing
In a C-40 mounting, attach to thin-gauge metal furring with Tectum sharp point screws with coordinating painted face.

Drywall Grid Furring
In a C-40 mounting, attach to thin-gauge metal furring with Tectum sharp point screws with coordinating painted face.

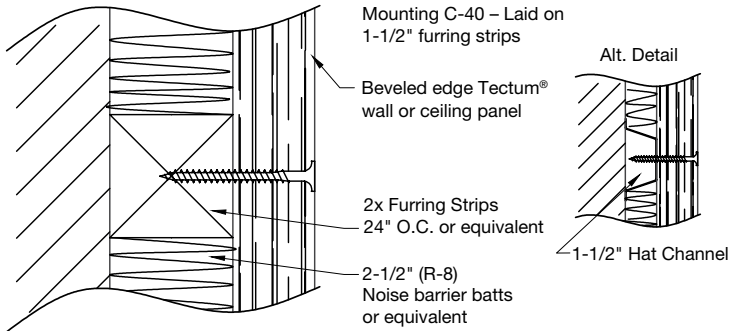
Heavy-gauge Metal Furring or Structural Steel
In a C-40 mounting, attach to heavy-gauge metal furring with Tectum drill point screws with coordinating painted face.

NOTE: Refer to the Fastener Reference Chart found in Section 3, to obtain screw item number specific to the panel thickness being installed.

Contact a fastener manufacturer, such as Hilti®, Fastenal®, or TapCon® to ensure the correct fastener for the structure type, since structure fastener requirements can vary.

4.4 Mounting C-40 *(Fig 7)*

(Fig 7)



The C-40 Direct-Attach mounting method includes beveled-edge wall panels laid on 1-1/2" furring strips with 2-1/2" batt insulation between the furring, which increases the acoustic absorption of the installed space (NRC). The furring must be attached to structure in a method that supports the full weight of the panels per the requirements specified in Section 4.5. Contact a fastener manufacturer, such as Hilti®, Fastenal®, or TapCon® to ensure the correct fastener for the structure type, since structure fastener requirements can vary.

Due to joist/stud spacing in most jobs, to meet fastener layout requirements furring strips are recommended to ensure a secure fastening location for the panels. If you are attaching to existing drywall, all fasteners must go into a stud, drywall grid, or other structural component. It is the responsibility of the contractor to locate these elements in either ceiling or wall applications.

Please consult the following sections for attaching the Tectum panels to the type of furring selected (Drill Point/Sharp Point) and Section 4.5 and Section 4.6 for spacing requirements (for standard interior or high-impact/abuse spaces):

Attach Tectum panels directly to 3/4" wood or metal furring (see Section 4.6 for screw spacing/guidance):

Wood Furring
In a C-20 mounting, to attach to wood furring, use Tectum sharp point screws with coordinating painted face.

Light Gauge (20-25 gauge) Metal Furring/Framing
In a C-20 mounting, attach to light-gauge metal furring with Tectum sharp point screws with coordinating painted face.

Drywall Grid Furring
In a C-20 mounting, attach to thin-gauge metal furring with Tectum sharp point screws with coordinating painted face.

Heavy-gauge Metal or Structural Steel
In a C-20 mounting, attach to heavy-gauge metal furring with Tectum drill point screws with coordinating painted face.

NOTE: Refer to the Fastener Reference Chart found in Section 3, to obtain screw item number specific to the panel thickness being installed.

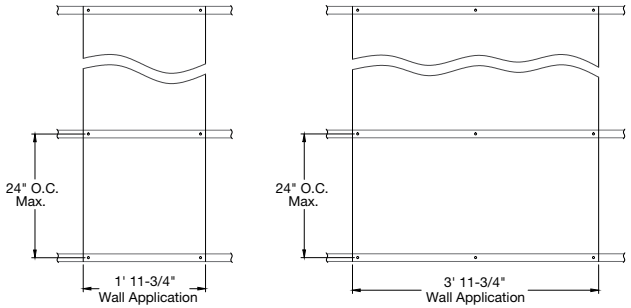
Contact a fastener manufacturer, such as Hilti®, Fastenal®, or TapCon® to ensure the correct fastener for the structure type, since structure fastener requirements can vary.

4.5 Panel Direction & Fastener Layout

Recommended screw spacing is such that one screw supports one square foot to three square feet of panel. The Tectum standard Direct-Attach ceiling and wall panels have a weight of 1" - 1.65 lbs/SF, 1-1/2" - 2.23 lbs/SF; and 2" - 3.3 lbs/SF. It is the contractor/installer's responsibility to ensure type of fastener and placement is able to carry the system weight. Additionally, the Tectum® panel surface is not intended to support additional weight. Because the pull-through resistance of the screw head is adequate, no washers or adhesive application is required.

Horizontal Wall Panel Installation
Tectum panels should be fastened a minimum of 24" O.C. starting at the edge of the panels. When furring is used it should be installed perpendicular to the long side of the panel. Tectum panels are required to be installed in an ashlar pattern (staggered end joints). Furring is required at the ends of the panels.

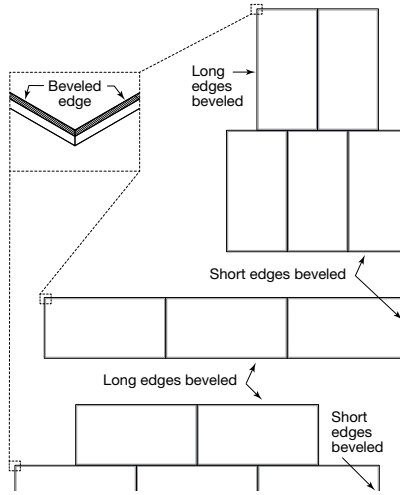
Vertical Wall Panel Installation
Tectum panels should be attached at a maximum 24" O.C. on the vertical dimension and 23-3/4" on the horizontal dimension *(Fig 8)*.



(Fig 8)

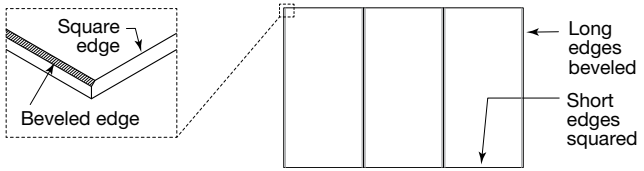
Installation Recommendations
It is recommended that Tectum panels are installed beveled edge to beveled edge. Square edges should only be used around the perimeter of installations.

NOTE: Use Beveled Edge/Beveled Edge panels for all adjoining panel installations *(Fig 9)*.



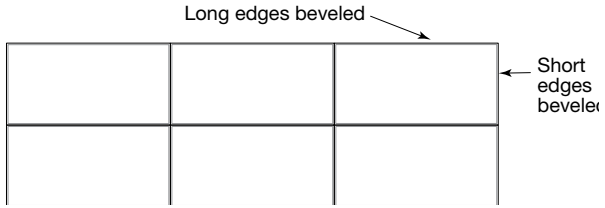
(Fig 9)

NOTE: Use Beveled Edge/Square End for panel layout shown in *(Fig 10)*.



(Fig 10)

NOTE: Stacked bond patterns are possible but not recommended. If you choose to proceed with this installation method, all adjoining panel joints must be installed Beveled Edge/Beveled Edge. Field trimming of panels may be necessary to achieve the desired fit and alignment *(Fig 11)*.

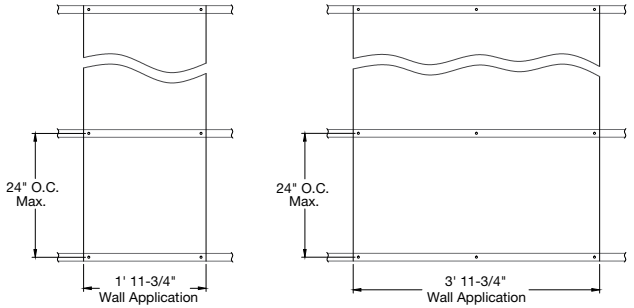


(Fig 11)

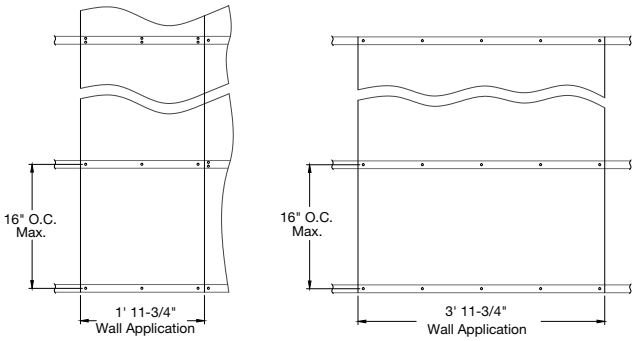
Tectum Create!™
Tectum Create! panels are directional based on the printed design. The label on the back of the panel will designate the direction of the panel. All panels must be installed in the same direction in order to achieve the desired design. Installers should line the panels edges up so the design flows seamlessly from panel to panel. See Section 10 for the standard design installation patterns. All panels are beveled on all four sides.

4.6 Screw Placement for ALL Mounting Methods

Tectum® interior panels are typically installed over furring but the same screw pattern should be used for a Type A direct mounting. The recommended method is for the furring to be spaced not over 24" O.C. and perpendicular to the panel direction in standard use spaces *(Fig 12)*. Please see Section 4.9 for screw spacing recommendations for high impact areas *(Fig 13)*. Furring is required at the panel ends. The attachment of the furring and the furring must be designed to support the weight of the panels. If furring must be installed parallel to the panel direction, the spacing must match the panel width.



(Fig 12) *Standard Wall Panel Attachment*



(Fig 13)

A panel 47-3/4" must have mid-width furring. Spacing should be as follows for furring parallel to Tectum panels:

- 23-3/4" width 23-3/4" center-to-center spacing
- 47-3/4" width 23-7/8" center-to-center spacing

When attaching to furring use painted head drywall screws. For wall applications on 23-3/4" wide panels, two screws per furring crossing are required; for 47-3/4" wide panels, three screws per furring crossing are required. The screws are to be spaced 1" from the panel edges and where three (3) are required, the third screw is centered. For ceiling applications using 23-3/4" wide panels, three (3) screws per furring crossing are required. For ceiling applications using 47-3/4" wide panels, five (5) screws per furring crossing are required.

NOTE: Short side of panel (panel width) is undersized at 23-3/4" or 47-3/4", while long side of the panel is 48" or 96".

4.7 Staggered End Joints (Ashlar Pattern)

Tectum Direct-Attach panels are available with different edge profiles. Some panels feature beveled edges on the two long sides with square ends. These panels should be installed beveled edge to beveled edge. In installation layouts where these are not possible, ashlar patterns are required. For greater design flexibility, other panels are available with beveled edges on all four sides. Refer to the data page for item numbers corresponding to each edge option mentioned or contact Techline for assistance.

4.8 Field Cutting

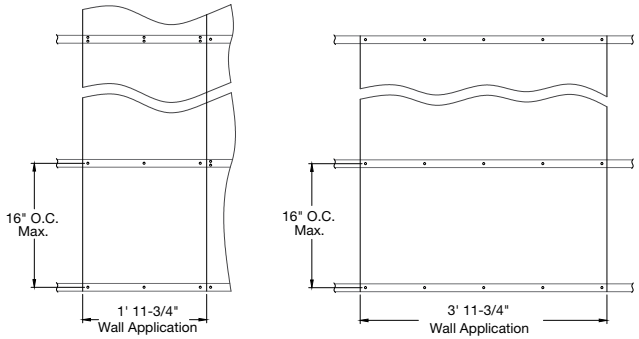
Tectum panels are easily cut using standard wood cutting tools. The short ends of panels (23-3/4" side for 2' × 4' and 47-3/4" side for 4' × 8' panels) will be square edges from the plant and will require a hand router with a 1/4" bevel bit to replicate the 1/4" bevel in the field, if required.

Tectum Create!™ panels should be cut with the printed image down to achieve the best visual result. Please be aware of the printed image on the panels and how a cut may affect the overall image and how the panels align with one another.

When cutting Tectum High NRC panels, if the fleece delaminates, use Original Gorilla Glue® (or equal) to relaminate.

4.9 High-Impact Areas

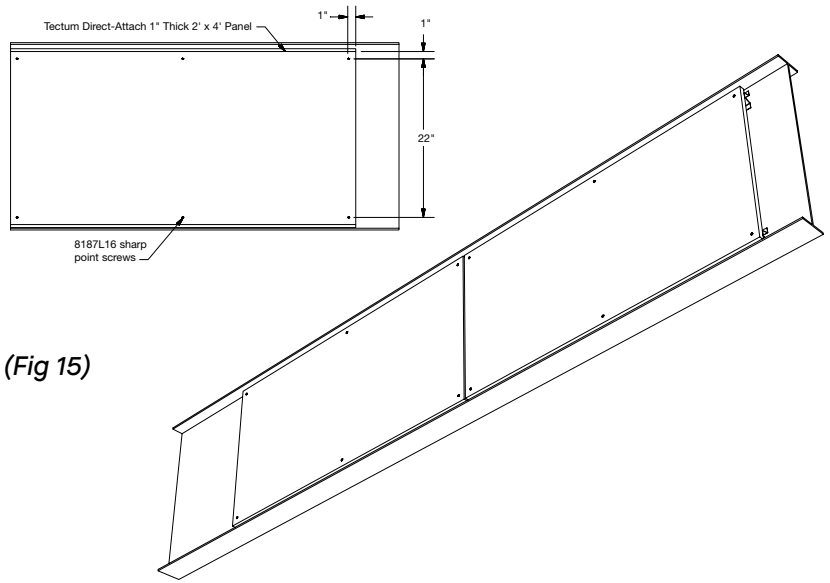
Furring or fastener attachment is required at 16" O.C. in lieu of 24" O.C. as described above in Section 4.6 for all panels *(Fig 14)*.



(Fig 14)

4.10 Attachment to I-Beam

Tectum® panels are mounted to I-Beams using metal furring channel and 8187L16 sharp point screws *(Fig 15)*. This installation method is limited to 1" thick panels, no more than 24" in height when installed horizontally. Panels can only be installed in single panel height rows, with the length of the panel in a horizontal orientation, and the short edges of each panel end to end. Panels can be installed with ends butted up or installed with a reveal between ends. See Sections 4.2, 4.5, and 4.6 for mounting method guide regarding furring and screw placement.



(Fig 15)

4.10.1 I-Beam Requirements

- The I-Beam web must be tall enough to accommodate two rows of furring spaced at least 6" O.C. up to a maximum of 22" O.C. running the same direction as the beam
- Fastener connections of the furring channel to the I-Beam structure are specified by the contractor and must follow the manufacturer's instructions and reference code

4.10.2 Installation Steps

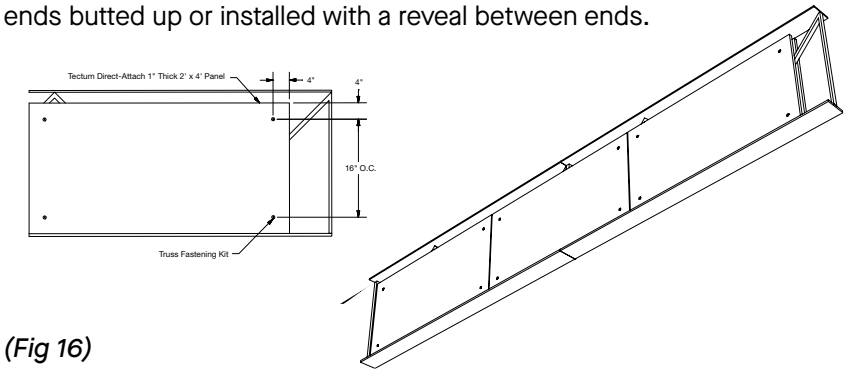
Spacing of the furring will be based on the panel size and necessary fastener locations. See Section 4.6 for instructions on mounting screw locations. Furring must be installed accordingly so that it is behind each fastener location.

Once your furring is installed, make sure you have sufficient clearance to install your panel between the flanges of the I-Beam. Measure the space between the flanges of the I-Beam to determine if the panels need to be cut to size. It is recommended that the panel have at least 1" of clearance at the top since I-Beam flanges taper inwards in most cases. If cuts are required see Section 7.2 for cutting instructions and Section 1.2 for safety recommendations.

You can either rest the panels on the bottom flange of the I-Beam as a method of aligning panels end to end, or, if installing the panels up off the flange, use a laser or string line to ensure a level installation. Panel ends are intended to be butted up against each other for the most pleasing visual.

4.11 Attachment to Truss

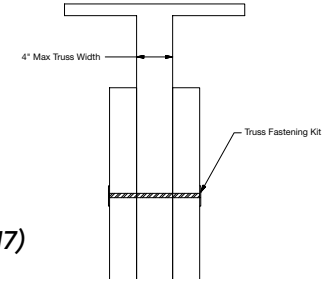
Tectum® panels can be mounted to flat trusses using the Truss Fastening Kit *(Fig 16)*. This installation method is limited to 1" thick panels, no larger than 24" × 48". The panels must be installed in pairs and cover both sides of the truss. Panels can only be installed in single panel height rows, with the length of the panel in a horizontal orientation, and the short edges of each panel end to end. Panels can be installed with ends butted up or installed with a reveal between ends.



(Fig 16)

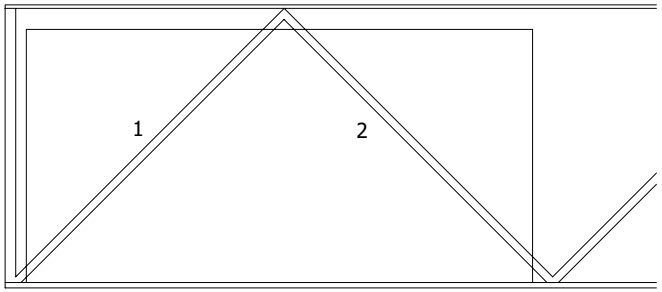
4.11.1 Truss Requirements:

- The truss must have a horizontal flange on the bottom edge greater than the width of the panel
- It must be no smaller than 8" in height between top and bottom flanges
- Webs/Braces of the truss can be no more than 4" ***(Fig 17)***, max dimension of air gap between panels that Truss Fastening Kit will accommodate)



(Fig 17)

- It must have a sufficient number of webs or braces for the panels to be fastened against. It is recommended that there are at least two webs or braces contacting each pair of panels when installed, thereby eliminating any risk of movement ***(Fig 18)***.

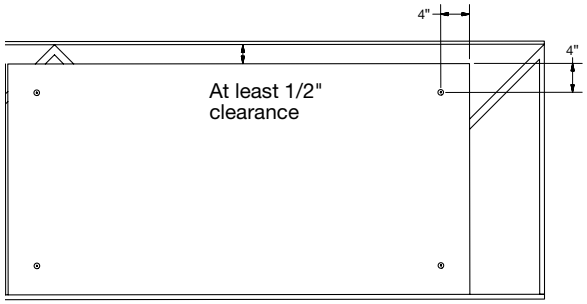


(Fig 18)

4.11.2 Installation Steps:

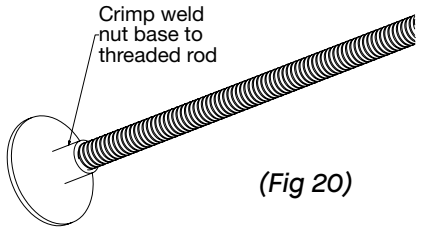
Make sure you have sufficient clearance to install your panels between the flanges of the truss. The panels should rest on the bottom flange of the truss and have at least 1/2" of clearance between the panel and the top flange of the truss. If your panel does not fit, you must cut it down to size.

It is recommended to have two installers for truss installations. Once the panels are cut to fit, pre-mark the locations for your truss fastening kit onto the panel. Four (4) fasteners are required per panel. It is required to have one (1) fastener located near each corner of the panel, approximately 4" in from each edge ***(Fig 19)***.



(Fig 19)

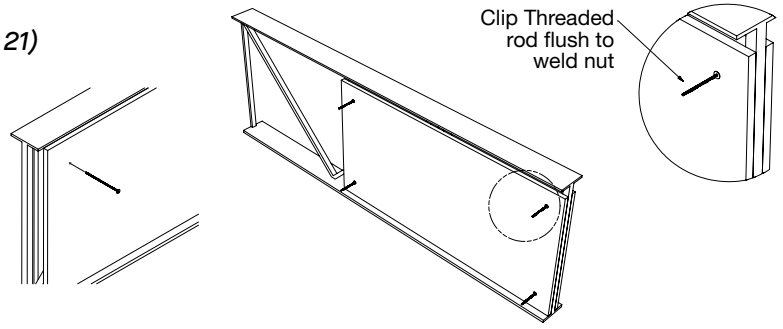
Screw one washer head onto the threaded rod such that it sits flush with the end of the rod. Once in place, crimp the washer so it cannot be unscrewed. Do this for all needed hardware ***(Fig 20)***.



(Fig 20)

Next, move your panels into the truss (one on each side of the webs) and align your two panels together. With the marked side of the panel facing you, take your threaded rod/crimped washer and tap the uncapped side through the panel, the air gap between panels, and out through the panel on the other side. Once through, cap off the other side with a washer and hand tighten against panel ***(Fig 21)***. Cut off whatever remains of the threaded rod.

(Fig 21)

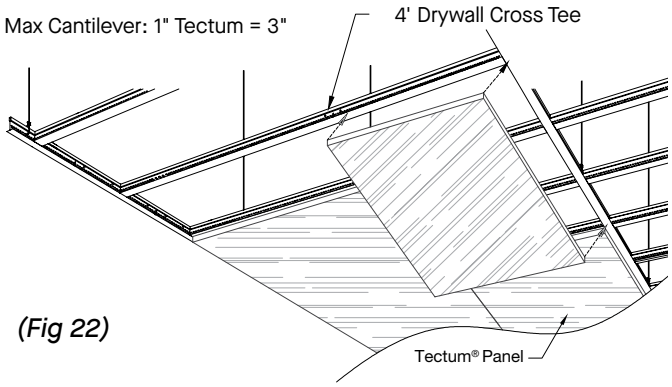


5. DIRECT-ATTACH – CEILING MOUNTING METHODS

Mounting Tectum® Direct-Attach panels to the ceiling follows the same fastener and mounting methods that are listed for walls in Section 4; however, the screw layout for any direct-attached ceiling panel should be mechanically fastened every 12" O.C. no matter what mounting method (A, D-20, C-20, or C-40). Metal or wood furring or Armstrong Ceilings Drywall Grid should be installed perpendicular to panel direction no more than 24" O.C. Once furring or grid is installed, place panel on furring, making sure panel ends fall over furring strips or grid members.

Tectum panels must be installed in an ashlar pattern (staggered panel ends).

Mechanically attach panels every 12" O.C. to furring placing screw heads flush with the face of the Tectum panel. Do not countersink screws. Place the next panel against the furring, butting the end to the previously installed panel. Anytime a Tectum panel touches another Tectum panel, the end should be beveled. Mechanically fasten the second panel every 12" O.C. ***(Fig 22)***.



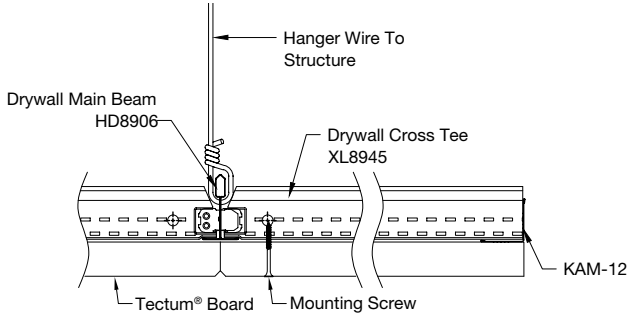
(Fig 22)

5.1 Direct-Attach to Armstrong FrameAll® Drywall Grid

The requirements listed here represent the manufacturer's minimum acceptable installation recommendations, and may be subject to additional requirements established by the local authority having jurisdiction.

- All installations shall follow ASTM C754
- Suspension components should be tested per ASTM E3090/3090M with load carrying capacities of 16 lbs/lf.

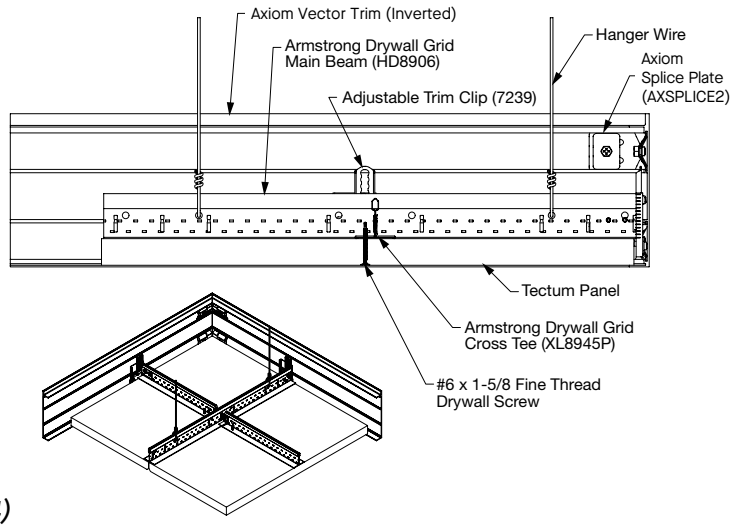
Use Armstrong® FrameAll® Drywall Grid main beam (Item HD8906) along with drywall grid cross tees (Item XL8945) and (KAM 12) Angle Molding. The panel length should run parallel with the main runners and screw layout should be 12" O.C. as shown for direct-to-furring application ***(Fig 23)***.



(Fig 23)

6. DISCONTINOUS/FLOATING INSTALLATION

6.1 Clouds with Axiom® Trim *(Fig 24)*



(Fig 24)

Tectum® 1" thick Direct-Attach panels can be used in discontinuous/floating ceiling installation with Axiom® Trim as long as the following requirements are met and understood:

- Inverted Axiom Vector is recommended. Use of Axiom Classic may be challenging for the installer to consistently hide the cut edge of the Tectum
- Only Tectum panels 1" thick or less can be used
- Field modifications of the panels may be required of the installer in order to provide an aesthetically pleasing visual at the Axiom perimeter. Without this, visible gaps may occur where the panel face overrides the Axiom flange due to slight surface-to-surface variation in the panel thickness.
- Axiom Trim can only be installed when the Tectum panels are mounted to Armstrong FrameAll® Drywall Grid. See Section 5 for more information on that installation method
- The Adjustable Trim Clip (Item 7239) must be used to accommodate the offset from the panel face to the main beam flange in order to house the cut panel edge on the Axiom flange
- Refer to the Axiom Classic installation instructions for detailed trim, clip, and support wire installation instructions
- Contact the local Armstrong Installation Support Specialist (ISS) Rep for assistance with the project and installation

7. PANELS

7.1 Edge Detail/Interface

Standard Tectum Direct-Attach panels are available in 1", 1.5" and 2" thick and nominal sizes of 2'x 4', 2'x8, and 4'x8'. Actual sizes are approximately 1/4" below nominal sizes (e.g.: 23-3/4" × 48"). Panels are available with different edge profiles options. Some panels feature beveled edges on the two long sides with square ends; however, the panels are field machinable. For greater design flexibility, other panels are available with beveled edges on all four sides. Refer to the data page for item numbers corresponding to each edge option.

Standard Tectum Create!™ panels for walls and ceilings are 1" thick and available in actual sizes of 23-3/4" × 48" and 47-3/4" × 96". All panels are beveled on four sides. Images are applied to the bevel.

7.2 Cutting of Panels

Cut the panel using standard woodworking tools and techniques. A table saw is recommended for straight cuts and a band saw for curved cuts. In both cases, panels should be cut face up to minimize chipping of the face veneer. To replicate the 1/4" factory bevel, a hand router with a 1/4" bevel bit can be used. Fine-toothed blades recommended for finish cuts will yield the best results.

7.3 Directionality

Tectum panels are available with different edge profiles. Some panels feature beveled edges on the two long sides with square ends. These panels should be installed beveled edge to beveled edge. In Installation layouts where these are not possible, ashlar patterns are required. For greater design flexibility, other panels are available with beveled edges on all four sides. Refer to the data page for item numbers corresponding to each edge option mentioned or contact Techline for assistance.

Tectum Create! panels are directional based on the printed design. The label on the back of the panel will designate the direction of the panel. All panels must be installed in the same direction in order to achieve the desired design. Installers should line the panels edges up so the design flows seamlessly from panel to panel. See Section 10 for the standard design layouts. All panels are beveled on all four sides.

7.4 Acoustic Infill for Direct-Attach Panels

Sound Absorption (NRC) of up to 1.00 can be achieved with standard Tectum Direct-Attach panels. See Section 4, C-20 and C-40 mounting methods.

7.5 Field Painting

Field Painting Specification Recommendation:
Sherwin-Williams® Product: Waterborne Acrylic Dryfall (B42W1) 50 GAL. Drums MPI# 118 (or substitute Alkali-based, flat latex paints with similar properties)

* Tests have shown that six coats of spray-applied paint have no negative impact on the acoustical and fire properties of the Tectum panels.

Recommended Spread Rate per Coat
Wet Mils: 3.5 - 5.0
Dry Mils: 1.5 - 2.0

Coverage: 336-450 sq. ft./gallon approximate (based on flat surface)
** If necessary, cross spray at a right angle*

Surface Preparation
Surface must be clean, dry, and in sound condition. Remove all oil, dirt, grease, and other foreign material to ensure adequate adhesion.

Application Condition
Temperature: 50° F minimum, 110° F maximum (air, surface, and material); at least 5° F above dew point

Relative Humidity: 75% maximum
Dry Time: 20 minutes
Recoat: 1 hour*

During the early stages of drying, the coating is sensitive to rain, dew, high humidity, and moisture condensation. Plan painting schedules to avoid these influences during the first 16-24 hours of curing.

Dryfall characteristics will be adversely affected at temperatures below 77° F or above 50% relative humidity.

Application Equipment
The following is a guide. Changes in pressure and tip sizes may be needed for proper spray characteristics.

Airless Spray:
Pressure: 2800
Hose: 1/4" ID
Tip: 0.013"
Reduction: As needed up to 10% by volume.

Conventional Spray:
Gun: Binks 95

Fluid Nozzle: 63C

Air Nozzle: 63PB

Atomization Pressure: 60 psi

Fluid Pressure: 50 psi

Reduction: As needed up to 20% by volume

Brush and Roller: Not recommended Field Touch Up and Color Match:
Standard White Color Match: Sherwin-Williams® #SW7006
Standard Natural Color Match: Sherwin-Williams #SW6126

** Tectum® panels should be fastened in place prior to field painting.*

7.6 Tectum Create! Field Touch-Up

If damage to a panel is too severe, do not install. Exact copies of a section of an image on one panel can be reprinted if the panel is damaged beyond use during installation.

Use a Sherwin Williams color swatch to match the color affected on the panel. Flat Acrylic paint has been used to match the toner of the printer successfully. It can be applied with an airbrush or individual strands painted by hand.

8. SPECIAL INSTALLATION CONSIDERATIONS

8.1 Sloped

Sloped ceiling installations should follow standard ceiling installation with screws 12" O.C. per Section 5.

8.2 Pools/Natatoriums

1-1/2" and 2" thick Tectum Direct-Attach ceiling and wall panels can be used in rooms with standing water. Review the *Tectum Direct-Attach Ceiling and Wall Panels for Indoor Swimming Pool Applications* installation instructions for more information.

8.3 Exterior Installation

Standard Tectum panels are not intended for use in exterior applications.

9. SEISMIC INSTALLATIONS

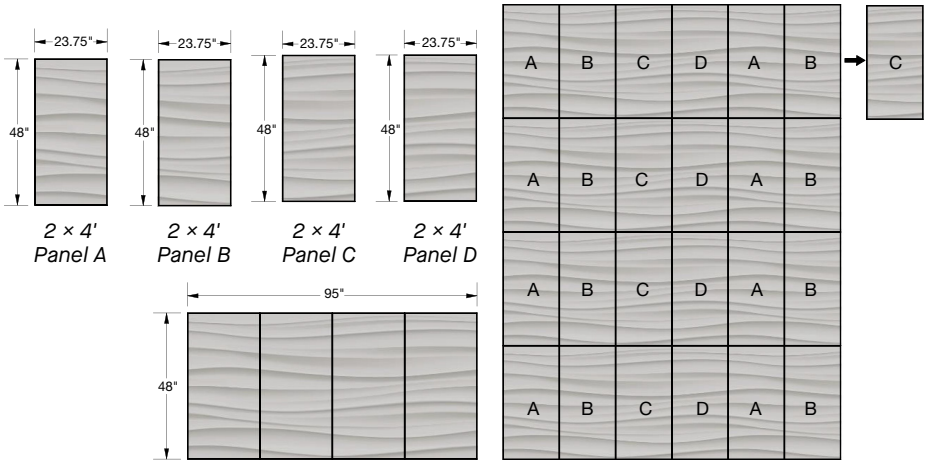
Seismic installations of Direct-Attach Tectum panels are to be handled per building code.

10. TECTUM CREATE!™

10.1 Design Layouts

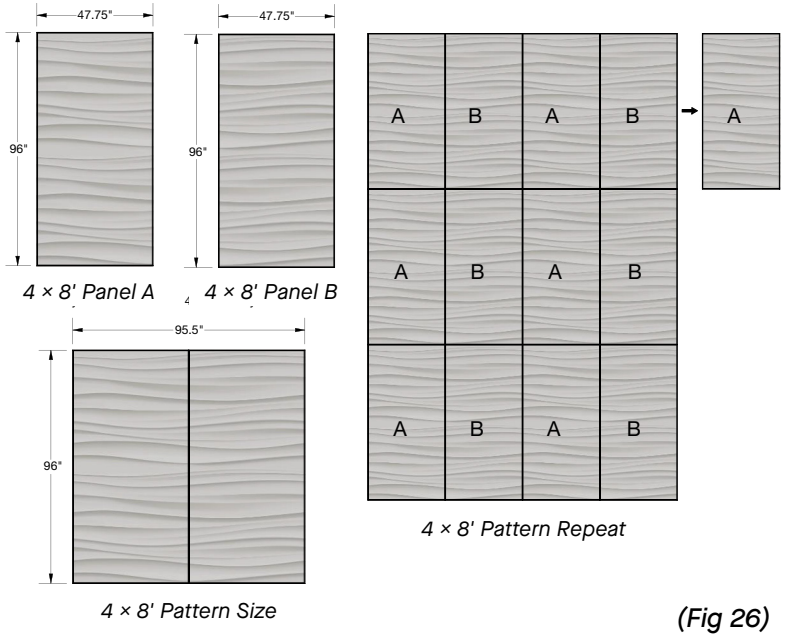
See the following sections for instructions on how to properly layout the standard Tectum Create! designs. Tectum Create! is limited to the 1" thick panels.

10.1.1 2' × 4' Panel Installation Pattern *(Fig 25)*



(Fig 25)

10.1.2 4' × 8' Panel Installation Pattern *(Fig 26)*



(Fig 26)

10.2 Direct-Applied – Adhesive Installation

10.2.1 Tectum® Create!™ panels can also be installed in wall applications only using construction adhesive. Armstrong® Ceiling and Wall Solutions recommends Titebond® GREENchoice or Henry® 237 AcoustiGum™ Acoustical Ceiling Tile Adhesive when using the direct-applied installation method. The adhesive will be supplied by the contractor.

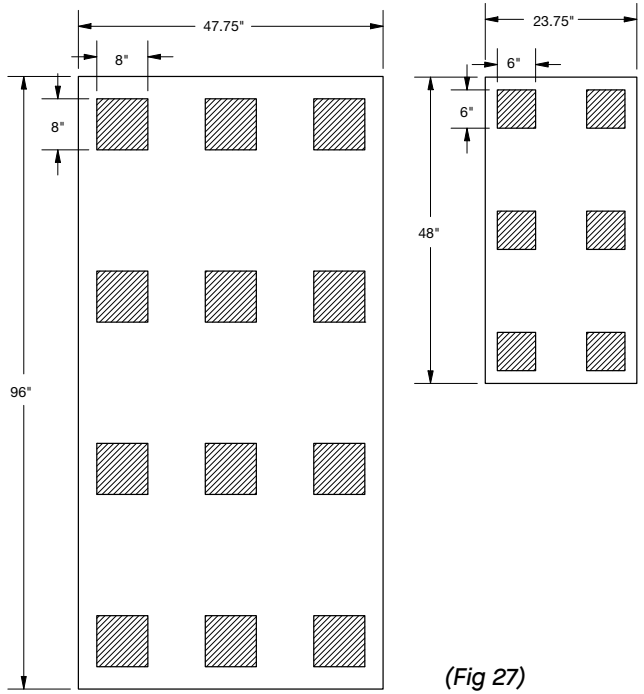
The Direct-Applied – Adhesive installation method is limited to wall installations only. Panels cannot be installed in ceiling applications using construction adhesive. The maximum panel size for this installation method is 48" × 96" × 1". Larger and/or thicker panels cannot be installed using construction adhesive. The adhesive attachment is not to be used in swimming pool installations.

10.2.2 Please follow adhesive manufacturer's instructions for application and usage. It is recommended to test and confirm suitability prior to installation. Armstrong does not guarantee the performance of these or other adhesive products, either alone or in conjunction with Armstrong products.

10.2.3 Surfaces must be dry and free of dust, grease, oil, dirt, or any other material that may deter adhesion when using the adhesive installation method. Existing finish paint must be well bonded and not flaking or peeling; otherwise it must be removed. Avoid applying to a newly painted surface. Glossy painted surfaces must be abraded. For painted or sealed surfaces, install a small test area and observe after 12 hours.

10.2.4 Using a trowel with 1/4" × 1/2" × 1/4" notches, apply the adhesive to the locations per the panel size you are using. An adhesive spot should be no less than 8" × 8" and 6" × 6" in size for the 4' × 8' and 2' × 4' (respectively), and it should be no more than 3" away from the edge of the panel. A 4' × 8' panel will receive twelve glue spots of 8" × 8" and a 2' × 4' panel will receive six glue spots of 6" × 6" *(Fig 27)*.

10.2.5 It is recommended to use an alignment method (i.e. laser, chalk line) to make sure the panels are properly positioned during installation.



(Fig 27)

10.2.6 Once in position, push the panel against the drywall or plywood applying even hand pressure to the panel where the adhesive is located, starting at the center first, and then working to the edges. By attaching the center first, the installer can still pivot the panel slightly left or right before adhering the edges. This ensures that the panel can be aligned correctly first before the edges are solidified into place. Avoid excessive pressure to minimize panel flexing that will disturb the previously pressed areas of adhesive and result in release of the adhesive. Lastly, press a sponge float across all areas of the panel where glue was applied to ensure all glue spots are properly compressed and adhered to the drywall.

10.2.7 Any slight adjustments to the panel placement should be done immediately so as to not weaken the adhesive bond. Once the panel is evenly pressed into position, the adhesive should provide an immediate bond to hold the panel in place while the adhesive sets.

10.2.8 Install trim screws to the panel once it is in the correct location to ensure that the panel does not slide down the wall. Trim screws are supplied by others.

10.2.9 In moderate or high impact areas, such as gymnasium walls less than 12 feet above the floor, additional screws are recommended.

	Item No. ◆	Item Name	Incl. with Panels	Sold by the:	Quantity
Tectum® Direct-Attach Ceiling & Wall Panels *Standard Items*	**Long Edges Beveled/Short Edges Square**				
	8180T10_ _ _	47-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
	8181T10_ _ _	23-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
	8182T10_ _ _	23-3/4 × 48 × 1" Panel	–	Pallet	572 SF
	8182T15PC1_ _ _	23-3/4 × 48 × 1-1/2" Panel	–	Pallet	384 SF
	8181T15PC1_ _ _	23-3/4 × 96 × 1-1/2" Panel	–	Pallet	768 SF
	8180T15PC1_ _ _	47-3/4 × 96 × 1-1/2" Panel	–	Pallet	768 SF
	8182T20PC1_ _ _	23-3/4 × 48 × 2" Panel	–	Pallet	288 SF
	8181T20PC1_ _ _	23-3/4 × 96 × 2" Panel	–	Pallet	576 SF
	8180T20PC1_ _ _	47-3/4 × 96 × 2" Panel	–	Pallet	576 SF
	Long Edges Beveled/Short Edges Beveled				
	8173T10_ _ _	47-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
	8174T10_ _ _	23-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
	8175T10_ _ _	23-3/4 × 48 × 1" Panel	–	Pallet	572 SF
	8173T15PC1_ _ _	23-3/4 × 48 × 1-1/2" Panel	–	Pallet	768 SF
	8174T15PC1_ _ _	23-3/4 × 96 × 1-1/2" Panel	–	Pallet	768 SF
	8175T15PC1_ _ _	47-3/4 × 96 × 1-1/2" Panel	–	Pallet	384 SF
	8173T20PC1_ _ _	23-3/4 × 48 × 2" Panel	–	Pallet	576 SF
	8174T20PC1_ _ _	23-3/4 × 96 × 2" Panel	–	Pallet	576 SF
	8175T20PC1_ _ _	47-3/4 × 96 × 2" Panel	–	Pallet	288 SF
Tectum Create!™ Ceiling & Wall Panels *Standard Items*	5334W2L04T10_ _ _	23-3/4 × 48 × 1" Panel	–	Pallet	1,152 SF
	5334W4L08T10_ _ _	47-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
Tectum High NRC Ceiling & Wall Panels *Standard Items*	5338W2L04T10_ _ _	23-3/4 × 48 × 1" Panel	–	Pallet	1,152 SF
	5338W4L04T10_ _ _	47-3/4 × 48 × 1" Panel	–	Pallet	1,152 SF
	5338W2L08T10_ _ _	23-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
	5338W4L08T10_ _ _	47-3/4 × 96 × 1" Panel	–	Pallet	1,152 SF
Tectum Direct-Attach Ceiling & Wall Panels *Installation Accessories**	8187L16THW	Sharp Point Screw #6 × 1-5/8" (for 1" panel)	No	Carton	1000 pcs
	8188L16THW	Drill Point Screw #6 × 1-5/8" (for 1" panel)	No	Carton	1000 pcs
	8189L22THW	CMU Screw – 2-1/4" Painted Head (for 1" panel)	No	Carton	500 pcs
	8187L22TWH	Sharp Point Screw # 2-1/4" (for 1-1/2" panel)	No	Carton	1000 pcs
	8188L23TWH	Drill Point Screw # 2 - 3/8" (for 1-1/2" panel)	No	Carton	1000 pcs
	8189L27TWH	CMU Screw # 2-3/4" (for 1-1/2" panel)	No	Carton	1000 pcs
	8187L30TWH	Sharp Point Screw #8 × 3" (for 2" panel)	No	Carton	1000 pcs
	8188L30TWH	Drill Point Screw #8 × 3" (for 2" panel)	No	Carton	1000 pcs
	8189L32TWH	CMU Screw – 1/4"-20 Thread × 3-1/4" (for 2" panel)	No	Carton	500 pcs
	1222	Truss Fastening Kit – Field Paintable	No	Carton	20 pcs
	1222WH	Truss Fastening Kit White	No	Carton	20 pcs
	1222BL	Truss Fastening Kit Black	No	Carton	20 pcs
		Wood or Metal Furring Strips	Not sold by Armstrong Ceilings		

◆ When specifying or ordering, include the appropriate 3-digit color suffix (e.g. 8182T10TNA – Direct-Attach Ceiling Panels with Long Edges Beveled/Short Edges Square – 23-3/4 × 48 × 1" in Natural)

** NOTE: Fasteners required vary based on project details. Reference Section 4 for guidance.*

MORE INFORMATION

For more information, or for an Armstrong Ceilings representative, call 877 276-7876.
For complete technical information, detail drawings, CAD design assistance, installation information,
and many other technical services, call TechLine customer support at 877 276-7876.

Hilti® is a trademark of registered trademark of Hilti, Corp.; Tapcon® is a registered trademark of Illinois Tool Works, Inc.;
Fastenal® is a registered trademark of Fastenal IP Company; Sherwin-Williams® is a registered trademark of The Sherwin-Williams Company;
Titebond® and GREENchoice™ are trademarks of Franklin International; Henry® and AcoustiGum are trademarks of WW Henry Company;
Gorilla Glue® is a registered trademark of Gorilla Glue Company; all other trademarks used herein are the property of AWI Licensing LLC and/or its affiliates.
© 2026 AWI Licensing Company Printed in the United States of America

BPLA-298661-626

Armstrong®
World Industries